NOTICE

All drawings located at the end of the document.

RMRS
Rocky Mountain
Remediation Services, L.L.C.
. . . protecting the environment
Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464
Phone: (303) 966-7000

CORRES. CONTROL		
LTR. NO.		
K-H Corres. #		
99-RF-		
Originator Ltr Log #		
TAH-053 -99		
DIST.	LTR	ENC
BODEY, E. D.		
CARMEAN, C.H.		
CRAWFORD, A.C.		
FINDLEY, M.E.		
FITZ, R.C.		
GUINN, L.A.		
HUGHES, F.P.		
KASEN, J. A.		
KORENKO, M. K.		
LAW, J. E.		
MILLS, S. H		
OVERLID, T. W.		
PATTERSON, J.W.		
SUTTON, S. R.		
TRICE, K. D.	X	X
WHEELER, M.		
WOLF, K. Z.	X	
WOLF, H. C.	X	
ARNOLD, P. S.	X	X
BAKER, T. C.	X	X
BURKS, D.	X	X
CATHEL, R. L.	X	
HOPKINS, T. A.	X	X
LANGLOIS, L. A.	X	X
MARTINEZ, G. L.	X	
URBAN, D. L.	X	X
ADMIN RECORD	X	X
RMRS RECORDS	X	X
TRAFFIC		
PATS/T130G		
CLASSIFICATION:		
UCNI		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		
AUTHORIZED CLASSIFIER		
SIGNATURE:		
Date: 7/16/99		
IN REPLY TO RF CC NO.:		
ACTION ITEM STATUS:		
q PARTIAL/OPEN		
q CLOSED		
LTR APPROVALS:		
ORIG. & TYPIST INITIALS:		
TCB:dlu		
RF-46469(Rev.1/99)		

July 16, 1999

Karan S. North
Environmental Systems and Stewardship
Kaiser-Hill Company, L.L.C.
Building T130C

CLOSURE DESCRIPTION DOCUMENT FOR TANK AND ANCILLARY EQUIPMENT SYSTEM #18 IN BUILDING 771 - TAH-053-99

Rocky Mountain Remediation Services (RMRS) plan to begin closure of Tank and Ancillary Equipment System #18 in Building 771 in August 1999. This system will be closed in accordance with the *RCRA Closure Plan for Interim Status Units* (July 1998) (Closure Plan). A 45-day notification was issued to the Colorado Department of Public Health and Environment (CDPHE), in accordance with the Closure Plan and with 6 CCR 1007-3, Section 265.111.

Pursuant to the Closure Plan, a Closure Description Document is attached for submittal to CDPHE. The Closure Description Document contains a description of the system to be closed, the selected method of closure, the types of contamination to be addressed and the schedule for closure activities.

Please transmit this Closure Description Document to CDPHE at your earliest convenience, so that closure activities may proceed in a timely manner. A draft letter to CDPHE is attached for your use.

If you have questions, please contact me at 303-966-7652 or Tom Baker at 303-966-4329.

Ted A Hopkins

Ted A. Hopkins, Manager
Environmental Compliance

TCB:dlu

Attachments (2):
As Stated

1/24

DRAFT DRAFT DRAFT

99-RF-XXXXX
DOE # xxxxx

Mr. Joe Scheiffelin, Unit Leader
Colorado Department of Public Health and the Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

CLOSURE DESCRIPTION DOCUMENT FOR TANK AND ANCILLARY EQUIPMENT SYSTEM #18 IN BUILDING 771 - KSN-XXX-99

Dear Mr. Scheiffelin:

Pursuant to the *RCRA Closure Plan for Interim Status Units* (April, 1998) (Closure Plan), Kaiser-Hill Company, L.L.C. and the United States Department of Energy, Rocky Flats Field Office (DOE, RFFO) are submitting a Closure Description Document for the closure of Tank and Ancillary Equipment System #18 in Building 771, which will begin in August 1999.

The Closure Description Document contains a description of the system to be closed, the selected method of closure, the types of contamination to be addressed and the schedule for closure activities. We request approval of the Closure Description Document within 30 days of receipt, in accordance with the Closure Plan.

If you have any questions, please contact Tom Baker of Rocky Mountain Remediation Services at 303-966-4329.

Karan S. North, Division Manager Date
Environmental Systems and Stewardship
Kaiser-Hill Company, L.L.C.

Joseph A. Legare, Asst. Manager Date
For Environment and Infrastructure
U.S. Department of Energy

cc:

C. Gilbreath	-	CDPHE
D. Grosek	-	DOE, RFFO
T.C. Baker	-	RMRS
T. A. Hopkins	-	RMRS
R.M. Leitner	-	Proctor's Enterprise
C.M. Madore	-	Savant Enterprises
N. C.T. Van Tyne	-	IT Corporation

Closure Description Document for

RCRA Closure of Tank and Ancillary Equipment System

#18 in Building 771

U.S. Department of Energy
Rocky Flats Environmental Technology Site
EPA ID No. CO7890010526

Reviewed and Approved by:

T.C. Baker, Environmental Compliance, RMRS — Date: 7/16/99

Prepared by:

N.C.T. Van Tyne, P.E., IT Corporation — Date: 7/16/99

REVIEWED FOR CLASSIFICATION/UCNI
By B. M. Hoffman
Date 7-16-99

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1.0 INTRODUCTION

1.1 Purpose and Scope

The Rocky Flats Environmental Technology Site's (RFETS) RCRA Closure Plan for Interim Status Units (Closure Plan) includes the Mixed Residue tank systems and the Idle Equipment tanks in Building 771. Decommissioning and removal of tanks and their ancillary piping and other equipment are subject to the Closure Plan and a subsequent Closure Description Document, which contains a description of the method of closure to be used. A two-step strategy will be employed: (1) wherever possible, meet the requirements for the "RCRA Stable" condition while the tanks remain in place, and (2) remove the tanks from the building at a later date.

The process piping in Building 771 has been divided into thirty-eight discrete "piping systems," with tanks and other ancillary equipment included. Thirty-five of these systems contain process piping connected to RCRA-regulated tanks. In order to prepare for building deactivation and to facilitate closure activities, each tank will be isolated by removing the process piping connected to it. Some tanks are connected to more than one process piping system. Once a tank has been isolated from **all** process piping systems to which it has been connected, it will be reported in the closure documentation as "RCRA Stable" if the requirements for the "RCRA Stable" condition, as described in the Closure Plan, have been met.

This Closure Description Document applies to Tank and Ancillary Equipment System #18 in Building 771, also known as Piping System #18, Special Recovery (Room 153). It applies to the closure of the tanks associated with this system, which are listed in Table 1 in Section 4.0. Closure of the tanks will be accomplished in two separate phases:

a. Phase I: Removal of the majority of ancillary process piping connected to these tanks and completing the isolation of these tanks and their associated ancillary equipment. The tanks are operationally empty and will meet the basic requirements for the "RCRA Stable" condition by being isolated as well as empty.

b. Phase II: Completion of RCRA closure of the tanks by removal of each isolated, "RCRA Stable" tank, along with any remaining ancillary piping or isolated ancillary equipment.

1.2 Unit Closure Notification and Schedule

The Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division, will be notified at least 45 days prior to the start of Phase I or Phase II closure activities. The identified closure activities will be conducted immediately after the 45-day notification period, and are expected to be completed within 180 days. If closure activities cannot be completed within 180 days, a request for extension will be submitted to the Division at least 30 days prior to the end of the 180 days.

Phase I activities for all systems are expected to be scheduled during the August 24, 1998 to December 30, 2001 time period. Phase II activities will be scheduled through the Rocky Flats Cleanup Agreement (RFCA) annual budget planning and Integrated Sitewide Baseline process.

Within 30 days after completion of Phase I or Phase II closure activities, a report will be submitted to CDPHE briefly summarizing the closure activities conducted in accordance with this Closure Description Document. The Phase I summary report shall contain the following:

- a declaration that the piping described in the submitted drawings has been removed as planned;
- descriptions of any significant deviations from this Closure Description Document;
- a copy of any newly-generated drawings;
- a statement as to whether the tanks involved have met the requirements of the "RCRA Stable" condition; and
- a summary of relevant analytical results.

The summary report for Phase II activities shall contain the following:

- details about the removal of "RCRA Stable" tanks from Building 771; and
- for mixed residue tanks with RCRA unit numbers, a statement that the unit is now clean closed.

1.3 Facility Contacts

The contacts for closure activities at RFETS are:

Assistant Manager
For Environment and Infrastructure
Rocky Flats Field Office
U.S. Department of Energy
P.O. Box 928
Golden, CO 80402-0928
(303) 966-4298

Division Manager
Environmental Systems
and Stewardship
Kaiser-Hill Company, L.L.C.
P.O. Box 464
Golden, CO 80402-0464
(303) 966-9876

2.0 BUILDING 771 FACILITY DESCRIPTION

According to the *Building 771/774 Closure Project Decommissioning Operations Plan* (DOP) and its references, Building 771 was used for production activities involving plutonium and other actinides in a wide variety of processes between 1951 and 1989. During this time, there was considerable variation in the processes, as well as several upsets that resulted in radiological contamination of the facility.

The current scope of decommissioning activities under the DOP includes decontamination, stripout, removal, size reduction and packaging of process and utility equipment, such as gloveboxes, tanks, piping, etc., and demolition of internal non-load-bearing structures as necessary to facilitate these activities.

3.0 METHOD OF CLOSURE AND PERFORMANCE STANDARD

The tank systems described herein will be closed by the method described as "Unit Removal" in the Closure Plan for Interim Status Units, Section E, while incorporating the intermediate stage of "RCRA Stable," as described in Section F of the Closure Plan. The tanks have already been drained; any liquid remaining in the associated process piping will be drained prior to the start of closure activities.

The Phase I performance standard for "RCRA Stable" shall be as follows:

a. The tanks are operationally empty, i.e., they were drained to the maximum extent possible using readily available means.
b. The piping sections shown in Figures 1-4 have been removed.
c. Inlets to and outlets from the tank have been isolated with paddle blinds.

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The Phase II performance standard is removal and waste packaging of the tanks and any remaining ancillary equipment.

4.0 UNIT DESCRIPTION AND WASTE CHARACTERIZATION

The piping for this system originates in Room 153, with branches that terminate in Rooms 149 and 180K, respectively. System #18 was part of the Special Recovery process, located in Room 153. Experiments were conducted using a variety of nuclear materials, and involved the transfer of acidic and/or caustic solutions through the piping. Consequently, high levels of radioactive contamination are currently expected inside the piping.

An "Initial Characterization " sheet is included as Attachment 1, with a narrative description in Section K and a description of piping removal scope in Section L. Equipment drawings are attached as Figures 1-4. During Phase I closure activities, all solution fill, drain, and transfer lines indicated in Figures 1-4 will be disconnected from the tanks and removed. The vacuum/vent lines will be left in place. The total length of piping to be removed during Phase I is estimated to be 800 feet. Some of the overhead piping (60 to 80 feet) located in Corridor D is inaccessible and will **not** be removed at this time (see Figure 3). This piping will be removed as part of D&D Set 58. Any significant changes to Figures 1-4 will be submitted to CDPHE with the Phase I summary report.

In addition to the piping, nineteen valves will be removed. Twenty-two termination points (TPs) are also indicated in Figures 1-4, and are numbered consecutively. Containment at the TPs will be designed and implemented to protect the room environment from release of contaminants remaining in disconnected systems.

Detailed information about the tanks in System #18 is given in Table 1 below:

Table 1: Tanks in System #18

Tank No.	Tank Type	Diameter (in.)	Height (ft.)	Current Volume (L)	EPA Codes
D-3	Pencil	5	7	Op. empty	D002
D-4	Pencil	5	7	Op. empty	D002
D-86	Raschig ring	18	2	Op. empty	D002, D008
D-87	Raschig ring	18	2	Op. empty	D002, D008
D-88	Raschig ring	18	2	Op. empty	D002

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The tanks listed in Table 1 were drained of their contents during the 1980's. Paddle blinds were installed at the flanged joints in the drain, fill and vacuum/vent lines, thereby isolating the tanks at that time. No additional draining of the tanks will be performed during tap and drain activities; based on the assumption that no additional liquids have entered the tanks. The remaining transfer lines will be removed from the tanks beyond the paddle blinds during Phase I closure activities. At the completion of Phase I activities, the tanks will meet the requirements of the "RCRA Stable" condition and this condition will be documented in accordance with the Closure Plan. The tanks will be removed as part of D&D Set 48.

EPA waste code D002 (corrosivity for either acid or base) is assigned to the liquids and removable sludges present in this system based on process knowledge. In addition, code D008 (lead) has been identified as a possible contaminant in the liquid from tanks D-86 and D-87. Additional samples of liquids recovered from piping during the Tap and Drain Project may be analyzed and their results may be used to re-characterize the residual liquids in this system. In particular, the liquids will be analyzed for lead and fluorides, since process knowledge indicates that some of the piping carried fluoride-containing liquids occasionally. While any remaining hydrofluoric acid is expected to have either evaporated or been diluted by this time, there may still be enough fluoride-containing liquids in the piping to require special safety precautions for the pipe removal team.

Because of the wide variety of process liquids present in this system during its operating history, the piping system has been divided into branches that will be sampled and analyzed separately. Details about the sampling will be described in the upcoming Sampling Strategy, which will be developed in conjunction with the Integrated Work Control Program (IWCP) work package.

This system contained highly radioactive liquid; therefore, significant internal radioactive contamination is anticipated. Prevention of release and minimization of work exposure will be addressed in the preparation of the IWCP work package, as described below.

5.0 SPECIFIC CLOSURE ACTIVITIES

Activities will be designed to achieve the closure performance standard, protect human health and the environment, and minimize waste. Specific work instructions, with engineering, health and safety, and waste management information, will be developed prior to the start of identified Phase I or Phase II

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closure activities. These instructions will be developed in accordance with applicable RFETS policies and procedures.

Closure activities are summarized as follows:

5.1 Establishment of Tank System Boundaries and Scope of Removal for Phase I

The boundaries for System #18, as described in Attachment 1, define the extent of closure activities for this closure description document. The boundaries are at or near flanged joints. Tank fill, drain and vacuum/vent lines contain paddle blinds in the flanges. At TPs where release of contamination and worker exposure are of concern, a relatively short pipe stub (length and exact location are dependent on field conditions) which is external to the joint may be used. This type of TP will be sealed and therefore contained by two layers of plastic sleeving taped to the stub. For tank drain lines, a "U"-shaped section may be left, so that the TP is on a vertical riser.

During Phase I closure activities, the overhead piping between the joints nearest the tank outlets in Room 153 and those joints nearest the points of entry into the gloveboxes will be removed, except for the piping in Corridor D indicated in Figure 3 which cannot be removed at this time. The tanks themselves and all remaining ancillary piping and equipment (e.g., pumps, heat exchangers, actuators) are expected to be removed during Phase II closure activities. The tanks in System #18 are currently scheduled for removal as part of D&D Set 48.

System #18 piping located inside gloveboxes will be removed when the glovebox is disassembled, to minimize worker exposure and cost. At that time, the waste will be characterized and managed accordingly.

5.2 Preparation of Engineering and IWCP Work Packages (Phases I and II)

A unit-specific IWCP/engineering work package will be prepared for System #18. The RFETS Health and Safety Practices Manual defines the general health and safety measures to be followed at the Site. Closure activities will be conducted in accordance with this manual, incorporating the results of job-specific industrial and nuclear safety-related evaluations and screens.

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The IWCP/engineering work package will be used to control work, including preparation of equipment, specification of personal protective equipment, methods of pipe removal and size reduction, methods for containing liquids and preventing releases to the environment, and waste packaging.

As Low As Reasonably Achievable (ALARA) principles will be followed regarding personnel exposures to radiation. Radiological containment will be provided during pipe cutting activities by the use of soft-sided structures such as glovebags, sleeves and/or portable housing. Larger containments may be constructed for disassembly and size reduction of tanks and associated equipment. Following size reduction, equipment pieces will be inspected and placed into a waste container.

Air pressure inside of larger containment will be maintained negative to the room air through the use of a portable air mover or by connection to the building exhaust system. Each process room is maintained at negative pressure relative to the surrounding building or outside atmosphere by the building room exhaust system, which prevents the escape of radiological or hazardous substances to the environment.

5.3 General Methodology for Piping Removal during Phase I

Prior to starting Phase I pipe removal activities, System #18 will be vented, purged, drained and then drained further by tapping into low points in the piping downstream of the paddle blinds, if required, until no additional liquid can be removed. The process piping should then be free of liquids. However, it is possible that residual liquids may be encountered during piping removal. The removal method employed will include provisions to contain residual liquids and/or sludges, which may contain high levels of radioactive contamination. Any resulting liquids or sludges, which may be combined with liquids recovered during the tap and drain process, will be characterized and treated for final disposal per waste acceptance criteria.

If a blockage is encountered that cannot be cleared readily during the tap and drain process, additional taps will be installed to minimize the length of the blocked section. Blocked sections will be removed with provisions to contain trapped liquids that may be present. These sections will be size reduced in a manner that accommodates the possibility that trapped liquids may be released to containment. A drainage path will be established through any remaining blockages to ensure that all liquid can be drained from the section. If significant blockages are encountered during tap and

drain activities, piping removal may be conducted in conjunction with those activities.

Piping removal, size reduction and packaging activities are considered to be dynamic processes, in which improvements in technology will be implemented as a result of newly available methods or lessons learned from prior piping removal operations. The piping removal steps described below may be modified in response to actual operating conditions. Possible modifications include the manner in which the pipe sections are separated, the type of containment used as a pipe section is removed, and the manner in which vacuum is applied and the type of containment used for size reduction.

In the majority of cases, piping will be removed in the following manner:

a. A glovebag or plastic sleeving will be installed around the section of piping to be removed.
b. Vacuum will be applied at one or both ends of a pipe section, and removal will proceed toward a vacuum source.
c. At a TP, the flange will be disconnected or the pipe cut. Containment of the remaining pipe end/stub will be maintained by two layers of plastic sleeving taped to the pipe with absorbent between the layers.
d. The pipe sections will be separated by the best available method (e.g. disconnecting at the flanged joint, four-wheel cutter, pipe-crimping tool).
e. If the four-wheel cutter is used: the pipe section is separated from the rest of the pipeline; the glovebag/sleeving which is still attached on both sides of the separation is then twisted and taped into a "pigtail" formation; and finally the twisted plastic is cut in the center and both ends sealed with tape leaving a "pigtail" on both sides. If the pipe-crimping tool is used: tape is applied to the area of the pipe to be separated; the pipe-crimper located over the taped area, the pipe is crimped, and the crimper is removed; and finally the pipe is separated and both crimped ends promptly sealed with tape. The pipe section can now be removed with taped plastic containment at both ends.
f. If any residual liquid or sludge is observed at either end of the removed pipe section, that section will be immediately bagged into the size reduction containment, to be size reduced and inspected. The recovered residual liquid and/or sludge will be collected, then stored in an approved RCRA storage area.
g. If no residual liquid or sludge is observed at either end of the pipe section, it will be brought to the size reduction area at an appropriate time.

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h. Piping sections will be size reduced, as necessary, using an approved cutting method. Crimped pipe sections must be size reduced by removing the crimped ends to facilitate inspection.
i. Pipe sections will be allowed to drain, in a vertical position, as required.
j. Pipe sections without crimped ends will be inspected visually to determine whether a blockage is present within the section.
k. Blockages in pipe sections will be penetrated by mechanical means to drain any trapped liquid.
l. Pipe sections will be drained of any remaining liquids or sludges, then placed into waste containers. Residual materials will be sampled and immobilized.

The contents and condition of the interior of the pipe section will dictate its disposition as waste. Three typical cases may be encountered:

- The interior surface is dry and contains no visible sign of hazardous waste holdup, so that the pipe section can be disposed as non-hazardous waste. This case is expected for all pipe sections in System #18.
- The pipe section contains solid residual material adhering to the interior walls, which cannot be removed readily. The pipe section will be managed as hazardous or non-hazardous waste, after a hazardous waste determination has been made on the basis of the analytical results for a representative sample of the material.
- A removable blockage or mobile sludge is found, and is removed from the pipe section and sampled. EPA codes are assigned to the sludge based on process knowledge or analytical results, and the sludge is treated to meet applicable waste acceptance criteria. The pipe section will be disposed as hazardous or non-hazardous waste, after a hazardous waste determination has been made.

Each IWCP work package, which will be prepared prior to the start of closure activities, will include more specific and detailed instructions for the sequence of piping removal steps, removal and size reduction methodology, and removal of residual materials from pipe sections.

6.0 SAMPLING AND ANALYSIS

Sampling and analytical methods, and quality assurance standards, are addressed in this section.

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6.1 Sampling Methods

Methods used to collect samples are authorized in 6 CCR 1007-3, Part 261, Appendix I, and the Liquid Residue Treatment Waste Characterization Plan for Process Piping Removal. Specific methods will be selected on the basis of ease with which representative samples can be collected, sampling location, sampling matrix, sample container type and size, and accessibility, as well as to maximize the value of data and minimize the number of samples needed.

Sampling of liquids is performed using the procedure entitled, Solution Bottle Handling Building 771, PRO-D02-CO-1131. The solution is mixed while in a bottle to assure homogeneity prior to sampling. Solid material sampling is performed using the procedure entitled, Laboratory Sampling Procedure, CAS-SOP-003.

6.2 Analytical Methods and Location

Analytical work will be performed in an RFETS approved laboratory. The analytical test methods for waste characterization are consistent with the approved methods in the Site RCRA Part B Permit, Part VI, Waste Analysis Plan.

6.3 Quality Assurance

The applicable RFETS Field Operating Procedure, 5-21-000-OPS-FO, or equivalent procedure(s), will be used to ensure the integrity of representative samples and analytical data.

7.0 DISPOSITION OF CLOSURE-RELATED WASTES

Metal, combustible and liquid/sludge wastes may be generated during either Phase I or Phase II closure activities. It is assumed that the Site waste management and treatment systems will be available to receive wastes generated by these closure activities.

Tank system components and pieces which are radioactively contaminated will be managed in accordance with the requirements of the RFETS Radiological Control Manual and Health and Safety Practices Manual, and will be packaged for disposal in accordance with applicable waste acceptance criteria. All metal waste from this system is expected to be either low level waste (LLW) or transuranic waste (TRU), depending on the amount of actinide present, and will be

characterized in accordance with applicable regulations. Tank system components and pieces completely free of any holdup will be managed as non-hazardous waste because there were no listed wastes in this system, and their materials of construction do not exhibit any characteristics of a hazardous waste. If the metal waste is determined to be hazardous debris, then an approved extraction technology may be implemented; however, hazardous debris is not expected for System #18.

Wipes and other combustible materials that are used to clean surfaces or to immobilize free liquids will be placed into waste drums, characterized and managed in accordance with applicable regulations. Other combustible wastes, including PPE and plastic containment void of any hazardous constituents, will be managed as non-hazardous radioactive waste. All waste drums will also be analyzed by non-destructive assay to categorize them as LLW or TRU and they will be stored in an appropriate onsite storage area prior to offsite disposal.

The only liquids expected to be generated during Phase I or Phase II closure activities are the residual liquid holdup in the equipment. Liquid inventory in the tanks or ancillary equipment, except for incidental amounts that may be absorbed onto wipes or drained into 4-liter bottles. The bottles would be placed into permitted or otherwise compliant storage areas and managed in accordance with applicable regulations until analytical results are available. The contents of the bottles may be transferred to process waste tank D-544 (for acids) or D-545 (for caustics), depending on analytical results. Liquids in bottles destined for the Miscellaneous Cementation treatment process or the Caustic Waste Treatment process will be sampled and analyzed for final characterization prior to transfer. If analytical results indicate that fluorides are present in the liquid, then this liquid will also be subject to treatment prior to disposal.

Any liquid or mobile sludge found in components during closure activities will be removed or immobilized in situ prior to packaging for disposal, in accordance with applicable waste acceptance criteria. Sampling of the sludge may be necessary to characterize it properly. System components containing solidified sludge that adheres to the interior walls will be characterized using analytical results for a representative sample of the sludge and managed in accordance with applicable regulations. The sampling protocol and number of sampling locations will be determined if solid residual material actually is encountered, and will be based on the Waste Characterization Plan.

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8.0 SOIL CONTAMINATION EVALUATION AND POST CLOSURE CARE

The operating history for these tank systems (e.g., building logs, RCRA inspection logs and occurrence reports) indicates that there have been no spills or releases to the environment as a result of waste management activities in these units. Phase I and Phase II closure activities associated with these tank systems are not expected to impact the soils surrounding Building 771. Therefore, soil contamination will be evaluated as part of decommissioning and cleanup activities for the Building 771 complex under RFCA, and post-closure care activities are not necessary as part of the closure of these tank systems.

9.0 RECORDKEEPING

The following closure records will be maintained onsite during closure activities, and at a federal repository for a minimum of 30 years following the report of closure:

- sampling logs, including type, numbers and date of samples;
- analytical results;
- records of actions taken to decontaminate equipment and/or structures;
- work instructions used to conduct closure activities;
- closure report for Phase I activities; and
- documentation verifying that closure activities were conducted in accordance with the approved Closure Plan and with this Closure Description Document, following completion of Phase II activities.

10.0 AMENDMENT OF THE CLOSURE DESCRIPTION DOCUMENT

In conducting Phase I or Phase II closure activities, unexpected events that are identified during the implementation of closure activities may require an amendment to this Closure Description Document. Modifications to this Closure Description Document will be made in accordance with applicable regulations.

During the planning and development stage of Phase II closure activities, additional drawings that are developed for the removal of tanks and remaining ancillary equipment will be submitted as an addendum to this Closure Description Document. This Closure Description Document may be augmented or superceded by an approved Building 771 Decommissioning Operations Plan (DOP).

11.0 REFERENCES

1. Code of Colorado Regulations, Vol. 6, No. 1007-3, Part 265, Subpart G, Sections 265.110 through 265.120.
2. Rocky Flats Environmental Technology Site RCRA Permit, Part X: Closure Plan, effective 5/10/98.
3. Rocky Flats Environmental Technology Site Closure Plan for Interim Status Units, effective 7/98.
4. Rocky Flats Environmental Technology Site 1997 Hazardous Waste Tank Systems Management Plan, effective 2/13/98.
5. Backlog Waste Reassessment Baseline Book, an RFETS Level 1 Manual, effective 2/17/98.
6. Building 771 Basis for Operation (BFO), 98-RF-00947, effective 2/27/98.
7. Building 771 Liquids Process Piping Removal Waste Characterization Plan, Rev. 0, 12/3/98.

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Attachment 1: Initial Characterization for System #18

BUILDING 771TAP & DRAIN/PROCESS PIPING REMOVAL CHARACTERIZATION SHEET

SYSTEM NUMBER	NAME	ENGINEER	REVISION DATE
18	SPECIAL RECOVERY (ROOM 153)	STEPHANIE YELA	06/17/99

A. START POINT	Room 153
B. END POINT	A Process Waste Line from Glovebox 153C will be terminated in Room 160 (capped pipe), and Room 180K (Glovebox K-20). A Process Waste Line from tanks D-87 and D-88 to Building 774 will be terminated in Room 149. All remaining process piping is contained within Room 153.
C. CHEMICAL COMPOSITION	8M KOH, 0.35N-7N-12N HNO_3, F, H_2SO_4, $AlNO_3$, HF, Oxalic Acid
D. RAD/ACTINIDE CONTAMINATION	>6 g/l Pu/U/Am/Cm/Ce/Np/Th
E. ESTIMATED SYSTEM MAX VOLUME	8 Liters
F. TANKS INVOLVED	Room 153 - D-153E, D-3, D-4 (Pencil Tanks), D-86, D-87, D-88 (Raschig Ring Tanks)
G. GLOVEBOXES INVOLVED	Room 153 - Lines 153-A 153-C, 153-D, 153-E; Room 180K - Line K-20 **NOTE:** The terms "Glovebox" and "Line" are interchangeable in this document
H. OTHER COMPONENTS	None
I. SYSTEM INTERFACES	System 17 - Room 180K, Line K-20 System 19 - Line 153B System 20 - Lines 153B, 153C System 21 - Lines 153B, 153C System 29 - Line 153C, 153E System 32 - Line HC-1 System 35 - Tanks D-87, D-88 System 37 - Tanks D-3, D-4, D86, D-87, D-88; Lines 153A, 153B, 153C, 153D, HC-1, HC-2, HC-3
J. CHEMICAL COMPATIBILITY AT INTERFACE(S)	KOH, HNO_3, H_2SO_4, and HF. Caustic and acid piping should be purged, drained, and stripped out separately to avoid combining the two solutions. **NOTE:** It may be possible that there is residual KOH/HF at Drain Point 16 (on drawing -02) that will have to be pulled into an acid line. Caution must be taken to ensure limited reactivity.

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K. NARRATIVE DESCRIPTION

The work performed in this room was authorized directly to the Los Alamos National Laboratories. Experimental activities were performed consisting of high radiation-producing operations. Hot Cells HC1, HC2; and Gloveboxes 153A, 153B, 153C, and 153D (chloride) were used for the aqueous operations and Hot Cells HC4, HC5, HC6; and Glovebox 153E were used for dry operations. Plutonium, uranium, americium, curium, and neptunium were aqueous operations and cesium and thorium were dry operations.

Several years ago Tanks D-3, D-4, D-86, D-87, and D-88 were blanked off from their respective fill, drain, and vacuum/vent lines.

Room 153 did not have its own vacuum source. Process vacuum was supplied through the House Vacuum System. Vacuum traps and associated piping will not be drained and removed as part of this evolution but will be captured in System 37, House Vacuum. An approved, alternate vacuum source will be used to remove solution for this evolution.

The fluorine bottle was removed in approximately 1978, and the piping system was purged at that time. However, trace amounts of fluorine and HF may still be present in the tubing. This tubing is excluded from this system and will be addressed at a later date.

The .35N HNO_3 piping to Line 153B is excluded from this system and will be addressed in System 19, .35N Nitric Acid.

The 7N HNO_3 piping to Lines 153B and 153C is excluded from this system and will be addressed in System 20, 7N Nitric Acid.

The 12N HNO_3 piping to Line 153B and 153C is excluded from this system and will be addressed in System 21, 12N Nitric Acid.

The HF and F piping/tubing to Line 153D is excluded from this system and will be addressed in System 22, Hydrofluoric Acid.

The 8M KOH piping to Lines 153C and 153E is excluded from this system and will be addressed in System 29, 8M Potassium Hydroxide.

The Kynar-lined piping (scrub alloy) to Line HC-1 is excluded from this system and will be addressed in System 32, Scrub Alloy.

Solutions may be drained by gravity or may be vacuum assisted.

It may not be possible to drain all piping/tubing/equipment inside gloveboxes. Remaining residual liquids will be drained during the D&D process for the gloveboxes.

There is approximately 800 linear feet of piping (½ to 1-inch diameter) associated with this system.

19

K. NARRATIVE DESCRIPTION (continued)

Vent, Purge, Tap/Drain (VP/TD) Recommendations:
VP/TD will be performed using an approved vacuum source. System 18 is small enough that the piping system need not be broken down into subsystems.

Piping should be VP/TD from the highest to the lowest points where possible.

Tap points and the final sequence of steps may differ from this description and may not be determined until the latter stages of the Enhanced Work Planning.

All drawings referenced in this description are SK-TO100539 Series unless stated otherwise.

Piping to be VP/TD:
"Process Waste From Rm 160" piping from Line K-20 (Room 180K) and Room 160 (capped) to Line 153C (Rm 153). (Drawings -01 and -04)

"Process Waste" piping from Room 149 (Valves HV-1496 and HV-1497, north of Line 30) to Valve HV-2682 near the top of Tank D-87 (Rm 153) (Drawings -01 and -03)

Piping from Tank D-87 and D-88 drain line to Line 153C (Drawing -01)

Piping from Tank D-86 drain line to Line 153C. (Drawing -01)

Position the vent line valve to Tank D-153E in the open position.

Piping from Valve HV-2699 to Line 153A. (Drawing -02)

NOTE: Precautions should be taken with piping from T153E to address the possibility of HF in gas and/or solution

Piping from Tank D-153E (Line 153E) drain line ("Process Waste") and Valves HV-2369 and HV-2699 to Valve HV-2698. (Drawing -02)

Piping from Tank D-87 and D-88 fill line and Valve HV-2699 to Line 153C. (Drawing -01)

Piping from Tank D-86 fill line to Line 153C. (Drawing -01)

Piping from Tank D-3 and D-4 drain line to Line 153D. (Drawing -01)

Piping from fill line on Tanks D-3 and D-4 to Line 153D. (Drawing -01)

L. PIPING REMOVAL DESCRIPTION

Piping may be removed in the same order as listed in the narrative, with the understanding that the EWP process may change the sequence of steps. Piping removal techniques have been discussed with the Pipefitters, with emphasis on the difficulty in removing pipe in the overhead.

Piping in corridor D will be drained but may remain in place due to inaccessibility. If left, the piping will be labeled as drained and will be removed during the D&D Process.

Craft knowledge gained from the removal of piping in other systems should be applied to the removal of this piping.

Piping to be removed is shown on Drawings SK-TO100539-X01 through -X04

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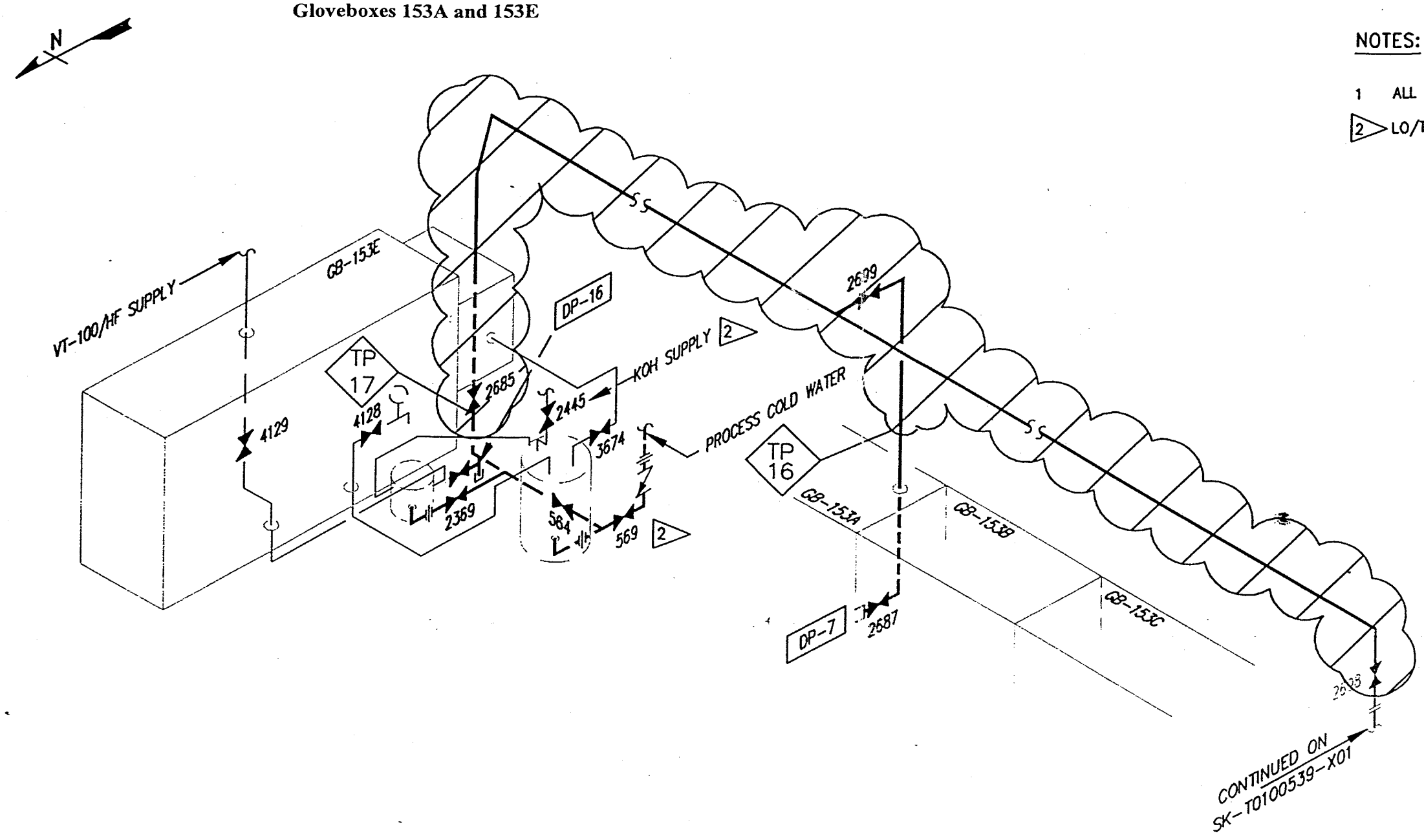
Figure 2: Tank and Ancillary Equipment System #18– Transfer Line between Gloveboxes 153A and 153E



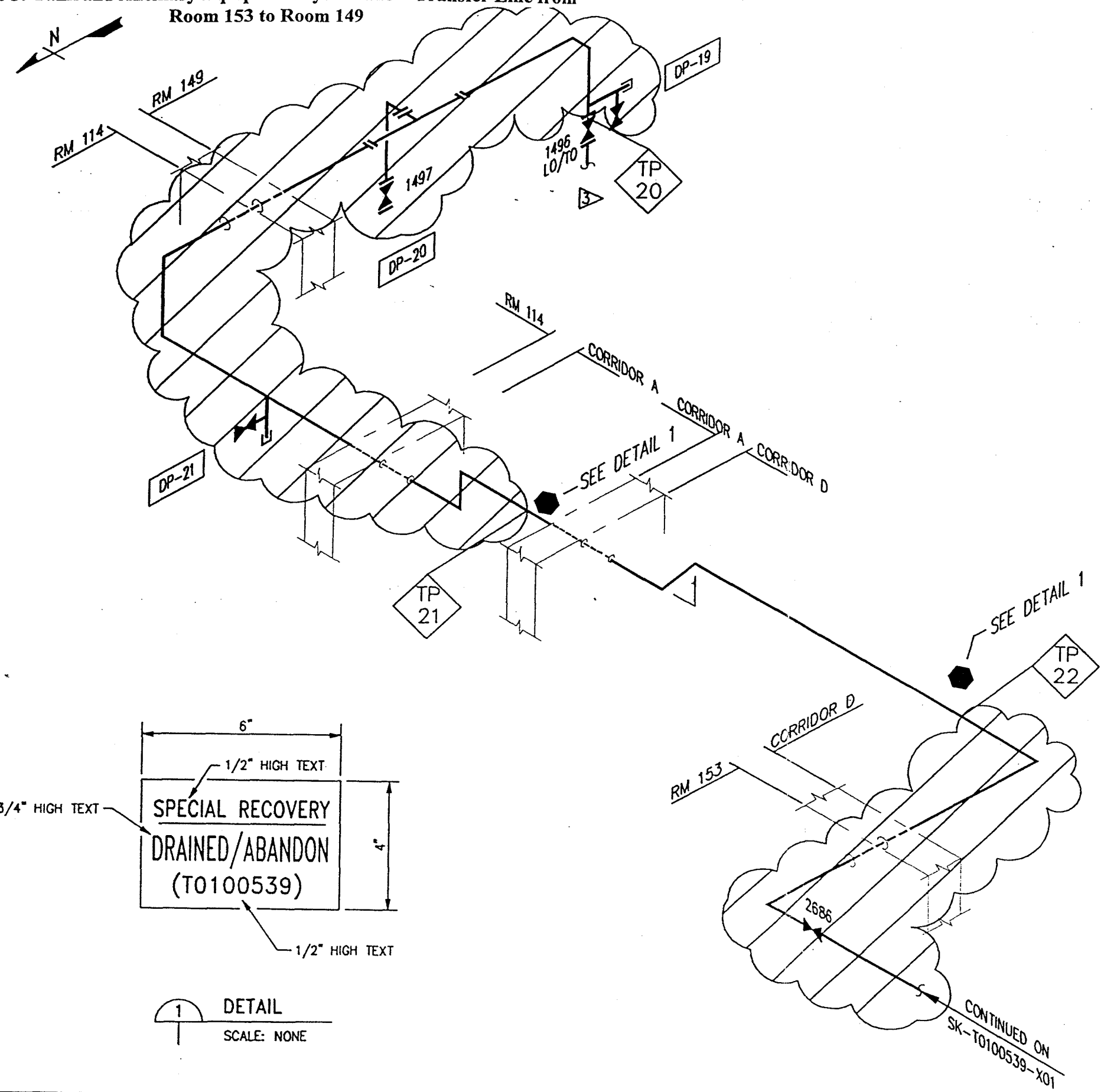
NOTES:

1 ALL VALVES ARE PRECEDED BY "HV" UNLESS OTHER WISE NOTED.

2 LO/TO HV-2445 AND HV-569 IN THE SHUT POSITION.

DRAWN YELA	DATE 6/17/99	EXCERPT OF MASTER DRAWING NUMBER: 17994-01 REV. C	
CHECKED	DATE 6/17/99		
CLASSIFIED	U/NO 6-17-99	APPROVED FOR USE WITH IWCP/AUTHORIZATION PROJECT NUMBER: T00100539	
BLDG/FACILITY 771		PROCESS PIPING REMOVAL SPECIAL RECOVERY RM. 153	
ROOM/AREA 153			
GRID COORD/COL NO.		SIZE	DRAWING NUMBER / SHEET
SCALE NONE		B	SK-T0100539-X02 / OF
CAD FILE SR153-02A			

Figure 3: Tank and Ancillary Equipment System #18 – Transfer Line from Room 153 to Room 149



1 DETAIL
SCALE: NONE

NOTES:

1 ALL VALVES ARE PRECEDED BY "HV" UNLESS OTHER WISE NOTED.

2 HV-1496 IS TO REMAIN UNDER LO/TO.

3 TIES INTO THE EFFLUENT WASTE LINE.

4 PATCH ALL WALL PENTRATIONS WITH 5-STAR GROUT OR ENGINEERING EQUIVALENT.

DRAWN YELA / DATE 6/17/99	EXCERPT OF MASTER DRAWING NUMBER: 17994-01 REV. C
CHECKED / DATE 6/17/99	
CLASSIFIED U/NO / 6-17-99	APPROVED FOR USE WITH IWCP/AUTHORIZATION PROJECT NUMBER: T00100539
BLDG/FACILITY 771	PROCESS PIPING REMOVAL
ROOM/AREA 153	SPECIAL RECOVERY RM. 153
GRID COORD/COL NO.	SIZE / DRAWING NUMBER / SHEET
SCALE NONE	B / SK-T0100539-X03 / OF
CAD FILE SR153-03A	

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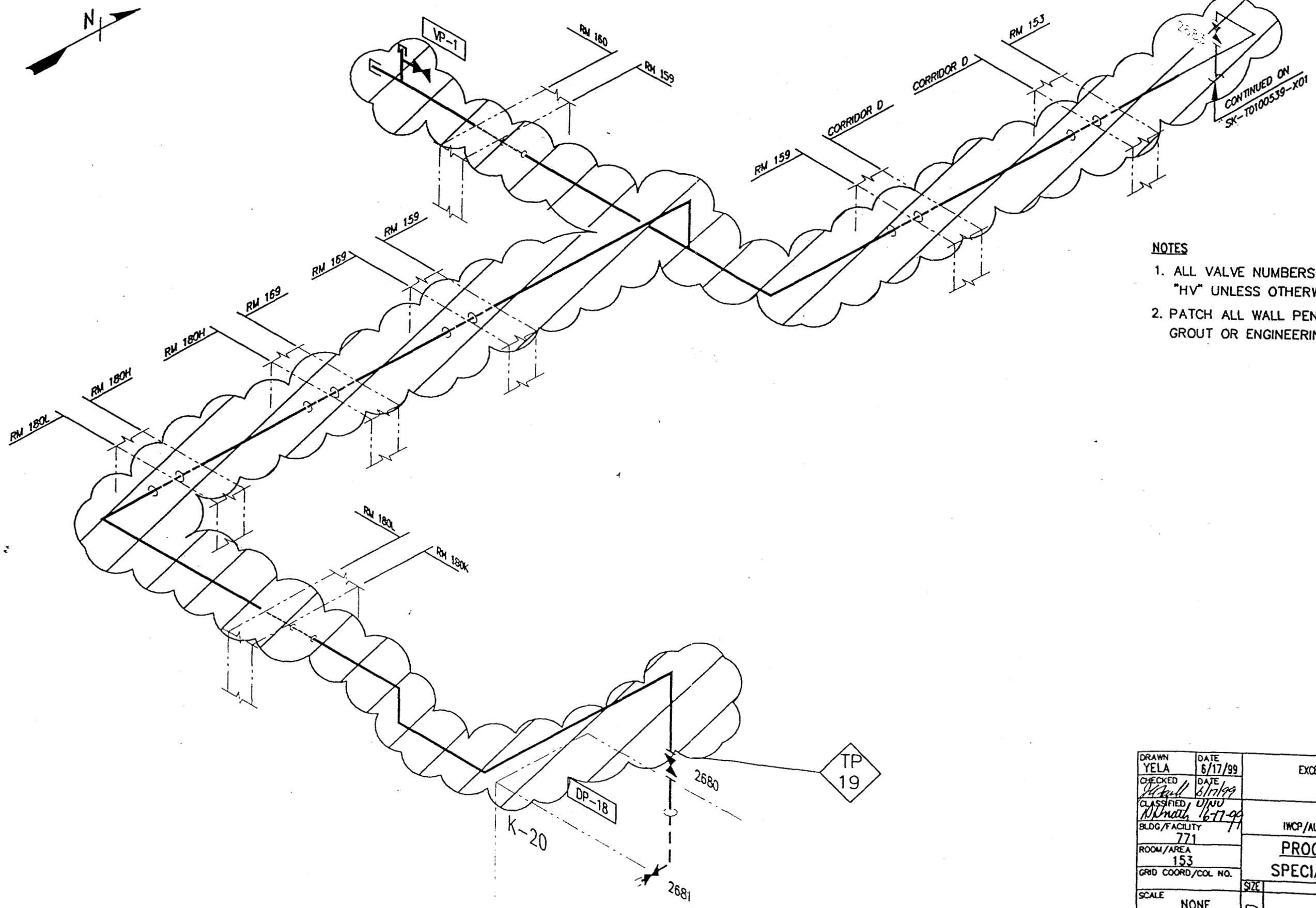
Figure 4: Tank and Ancillary Equipment System #18 – Transfer Line from Room 153 to the Room 180 Complex

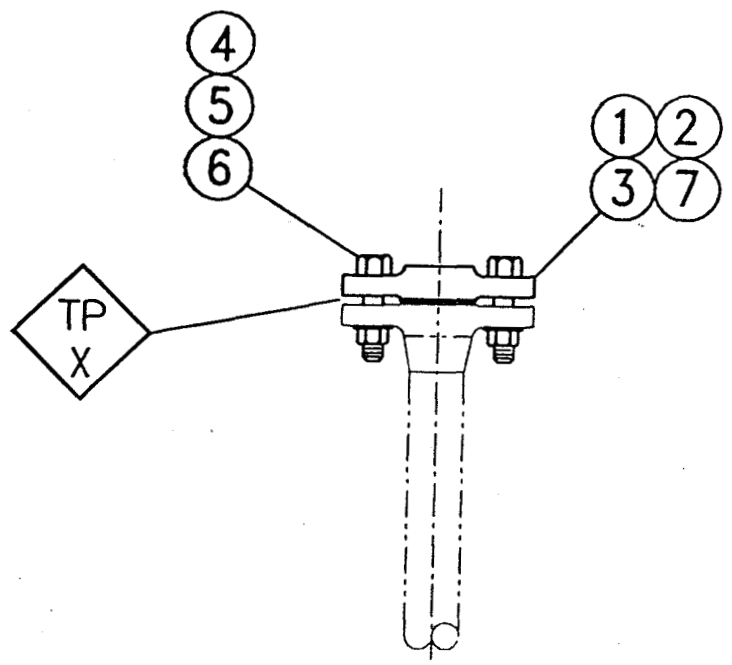


NOTES

1. ALL VALVE NUMBERS ARE PRECEDED BY "HV" UNLESS OTHERWISE NOTED.
2. PATCH ALL WALL PENETRATION WITH 5-STAR GROUT OR ENGINEERING EQUIVALENT.

DRAWN YELA	DATE 6/17/99	EXCERPT OF MASTER DRAWING NUMBER: 17994-01 REV. C
CHECKED	DATE 6/17/99	
CLASSIFIED U/NU		APPROVED FOR USE WITH IWCP/AUTHORIZATION PROJECT NUMBER: T00100539
BLDG/FACILITY 771		PROCESS PIPING REMOVAL
ROOM/AREA 153		SPECIAL RECOVERY RM. 153
GRID COORD/COL NO.		SIZE: B — DRAWING NUMBER: SK-T0100539-X04 — SHEET: OF
SCALE NONE		
CAD FILE SR153-04		

Figure 5: Tank and Ancillary Equipment System #18 – Termination Details



1 DETAIL – OPTIONAL

SCALE: NONE

PART	QTY	DESCRIPTION	MATERIAL
1	AR	FLANGE, 1", BLIND, RF, CLASS 150, ASTM A182 GR F 304L	304L SST
2	AR	FLANGE, 3/4", BLIND, RF, CLASS 150 ASTM A182 GR F 304L	304L SST
3	AR	GASKET, 1" PIPE DIA, 1/8" THK, STYLE 3510, 150# RING TYPE W/ TAB, GARLOCK INC	GARLOCK GYLON
4	AR	BOLT, HEX HEAD, 1/2"-13 UNC-2A X 2 3/4" LG ASTM A193, GRADE B8, CLASS 2	SST
5	AR	NUT, HEAVY HEX, 1/2"-13 UNC-2B ASTM A194, GRADE 8	SST
6	AR	WASHER, 1/2", TYPE B, NARROW SERIES ANSI B 18.22.1	304 SST
7	AR	GASKET, 3/4" PIPE DIA, 1/8" THK, STYLE 3510, 150# RING TYPE W/ TAB, GARLOCK INC	GARLOCK GYLON

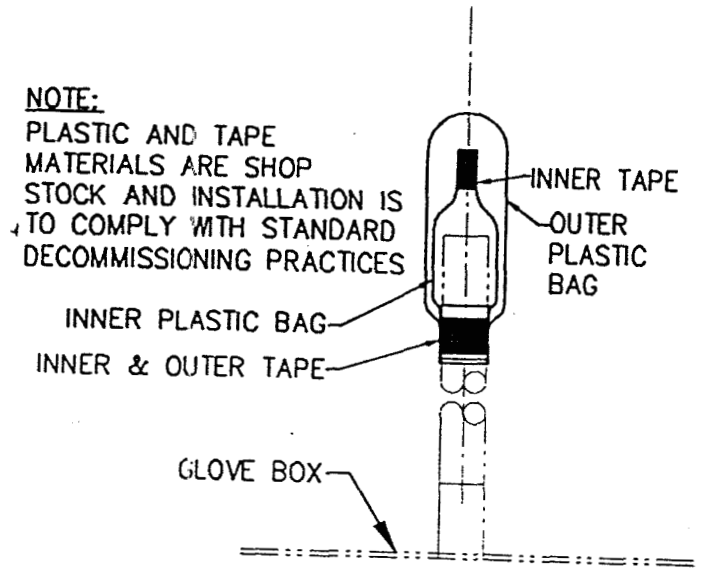
NOTES:

1. TORQUE FLANGE BOLTS IN ACCORDANCE WITH GUIDANCE DOCUMENT PLANT STANDARD SX-162.

NOMINAL FLANGE SIZE	RECOMMENDED BOLT TORQUE (FT-LB)
1/2"	28 (±4)
3/4"	40 (±6)
1"	53 (±13)

2. FIELD VERIFY ALL SIZES.

NOTE:
PLASTIC AND TAPE MATERIALS ARE SHOP STOCK AND INSTALLATION IS TO COMPLY WITH STANDARD DECOMMISSIONING PRACTICES



2 DETAIL – OPTIONAL

SCALE: NONE

APPROVED FOR USE
T0100539

S. L. YELA	RM DRAIN ENGR.
NAME	TITLE
SIGNATURE	DATE

DRAWN YELA	DATE 6/9/99	U.S. DEPARTMENT OF ENERGY
CHECKED	DATE	ROCKY FLATS AREA OFFICE — GOLDEN, COLORADO
CLASSIFIED		ROCKY FLATS PLANT GOLDEN, COLORADO
BLDG/FACILITY 771		PROCESS PIPING REMOVAL
ROOM/AREA 153		SPECIAL RECOVERY TERM. DETS
GRID COORD/COL NO.		SIZE: B — DRAWING NUMBER: SK-T0100539-X05 — SHEET: OF
SCALE NONE		
CAD FILE SR153-X05		